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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/868,262	01/03/2002	Stephen Karl Heeks	C1043/7034	7553
22852	7590	11/02/2004	EXAMINER	
FINNEGAN, HENDERSON, FARABOW, GARRETT & DUNNER LLP 1300 I STREET, NW WASHINGTON, DC 20005			GUHARAY, KARABI	
			ART UNIT	PAPER NUMBER
			2879	

DATE MAILED: 11/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/868,262

Applicant(s)

HEEKS ET AL.

Examiner

Karabi Guharay

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 August 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 10-12, 20-22, 33 and 34 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 10-12, 20-22, 33 and 34 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

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Amendment, filed on 11 August 2004 has been considered and entered.

Claim 34 has been added.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 10, 12, 20-21, & 34 are rejected under 35 U.S.C. 102(e) as being anticipated by Jones et al. (US 6198220).

Regarding claim 10, Jones discloses an organic light emitting device (100 of Fig 1) and comprising at least one layer of a light emissive organic material (light emitting layer 8 of OLED 10, Fig 2) interposed between a first electrode (anode 400) and a second electrode (900) all formed on a substrate (200), wherein the second electrode (900) is formed on a side remote from the substrate, the at least one electrode comprising one or more electrode layers (900 & layer 7, lines 50-55 of column 4) layer 7 is an electron injecting layer, and a stack (190, lines 9-10 of column 5) is formed on the at least one electrode (cathode 900) on the side of the light emissive organic material remote from the substrate (see Fig 1) comprising a first inert barrier layer (175) and a SiO layer (150, lines 23-27 of column 5) interposed between an outermost layer of one

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or more electrode (900) and the first inert barrier layer (175 made of TiN, Sc₂O₃, lines 52-54 of column 5).

Regarding claim 12, Jones discloses that the first inert barrier layer has a thickness in the range of .01 to 10 micron (layer 175 has thickness of 500nm, line 5 of column 6).

Regarding claim 20, Jones discloses that the thickness of the SiO layer (layer 150) is in the range of 0.01 to 5 micron (150 layer thickness is 0.5 micron, line 24 of column 5).

Regarding claim 21 Jones discloses that the cathode is a multiplayer electrode comprising a low work function conductive layer 7 (electron injecting layer 7) on the surface of the organic layer (8) and a second conductive layer (cathode layer 900) on the surface of the first low work function conductive layer 7.

Regarding claim 34, Jones discloses that the SiO layer is directly adjacent a surface of the outermost electrode layer (900, see Fig 1, lines 44-50 of column 6).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 11 & 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jones et al. (US 6198220).

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Regarding claims 11 & 33, Jones discloses that the layer 175 made of Ti/TiN material, TiN is an inert barrier layer, however, does not disclose AlN or alumina or silicon dioxide, However, it well know that these materials are well as a barrier material for the purpose of protecting organic material from oxygen and moisture.

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use AlN as the material instead of TiN dielectric layer, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use. See MPEP 2144.07.

Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jones et al., as applied to claim 10 above, further in view of Hung et al. (US 5776622).

Regarding claim 22, Jones discloses all the claimed limitation of claim 22 except for the first low work function conductive layer of calcium having a thickness 200nm or less, on the light emitting layer and a second conductive layer of aluminum having a thickness of 5 micron or less on the light emissive layer.

However, Hung teaches to have multi-layered cathode in an organic EL device having a first low work function conductive layer of calcium having a thickness 200nm or less, on the light emitting layer and a second conductive layer of aluminum having a thickness of 5 micron or less (lines 21-27 of column 5, and line 1 of column 5, and claim 2) as claimed in claim 22. This multi-layer cathode provides stability against atmospheric corrosion (see abstract).

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Thus it would have been obvious to one having ordinary skill in the art at the time the invention was made to introduce multi-layered cathode in the device of Harvey in order to obtain stability against atmospheric corrosion.

Response to Arguments

Applicant's arguments filed on 11 August 2004 have been considered but are moot in view of the new ground(s) of rejection.

Other Prior Art Cited

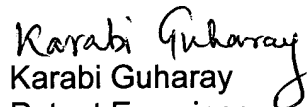
The prior art made of record and not relied upon is considered pertinent to applicant's disclosure :Aziz et al. (US 6740429, US 6614175, US 6765348).

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karabi Guharay whose telephone number is (571) 272-2452. The examiner can normally be reached on Monday-Friday 8:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimeshkumar D. Patel can be reached on (571) 272-2457. The fax phone number for the organization is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Karabi Guharay
Patent Examiner
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